

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of claims:

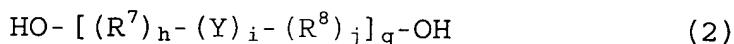
1. (previously presented) A polymer gel electrolyte comprising:

an electrolyte solution containing a plasticizer with at least two carbonate structures on the molecule and an electrolyte salt, and a matrix polymer,

wherein the matrix polymer is an unsaturated polyurethane compound prepared by reacting:

(A) an unsaturated alcohol having at least one (meth)acryloyl group and a hydroxyl group on the molecule; and

(B) a polyol compound of general formula (2) below



wherein R⁷ and R⁸ are each independently a divalent hydrocarbon group of 1 to 10 carbons which may contain an amino, nitro, carbonyl or ether group,

Y is -COO-, -OCOO-, -NR⁹CO- (R⁹ being hydrogen or an alkyl group of 1 to 4 carbons), -O- or an arylene group,

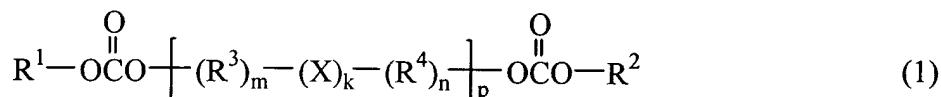
the letters h, i and j are each independently 0 or an integer from 1 to 10, and

the letter q is a number which is ≥ 1 ;

- (C) a polyisocyanate compound; and
- (D) an optional chain extender.

2. (previously presented) The polymer gel electrolyte of claim 1, 6 or 8 which consists essentially of the plasticizer with at least two carbonate structures on the molecule, the electrolyte salt, and the matrix polymer.

3. (previously presented) The polymer gel electrolyte of claim 1, 6 or 8 in which the plasticizer with at least two carbonate structures on the molecule is a compound of general formula (1) below



wherein R^1 and R^2 are each independently a substituted or unsubstituted monovalent hydrocarbon group of 1 to 10 carbons, and R^3 and R^4 are each independently a substituted or unsubstituted divalent hydrocarbon group of 1 to 20 carbons, with the proviso that any two of the moieties R^1 , R^2 , R^3 and R^4 may together form a ring; X is $-\text{OCO}-$, $-\text{COO}-$, $-\text{OCOO}-$, $-\text{CONR}^5-$,

-NR⁶CO- (R⁵ and R⁶ being hydrogen or an alkyl of 1 to 4 carbons), -O- or an arylene group; and the letters m, n, k and p are each independently 0 or an integer from 1 to 10.

4. (original) The polymer gel electrolyte of claim 3, wherein some or all of the hydrogen atoms on the plasticizer of general formula (1) having at least two carbonate structures on the molecule are substituted with halogen atoms.

5. (cancelled).

6. (currently amended). A polymer gel electrolyte comprising:

an electrolyte solution containing a plasticizer with at least two carbonate structures on the molecule and an electrolyte salt, and a matrix polymer,

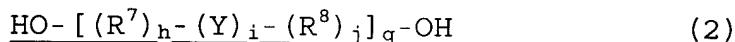
wherein the matrix polymer is a polymeric material having an interpenetrating network structure or a semi-interpenetrating network structure,

wherein the polymeric material having an interpenetrating network structure or a semi-interpenetrating network structure comprises a hydroxyalkyl polysaccharide derivative, a polyvinyl alcohol derivative or a polyglycidol derivative in combination with a crosslinkable functional group-bearing compound, part or all of

which compound is an unsaturated polyurethane compound prepared by reacting:

(A) an unsaturated alcohol having at least one (meth)acryloyl group and a hydroxyl group on the molecule; and

(B) a polyol compound of general formula (2) below



wherein R⁷ and R⁸ are each independently a divalent hydrocarbon group of 1 to 10 carbons which may contain an amino, nitro, carbonyl or ether group,

Y is -COO-, -OCOO-, -NR⁹CO- (R⁹ being hydrogen or an alkyl group of 1 to 4 carbons), -O- or an arylene group,

the letters h, i and j are each independently 0 or an integer from 1 to 10, and

the letter q is a number which is ≥ 1;

(C) a polyisocyanate compound; and

(D) an optional chain extender.

7. (cancelled)

8. (previously presented) A polymer gel electrolyte comprising:

an electrolyte solution containing a plasticizer with at least two carbonate structures on the molecule and an electrolyte salt, and a matrix polymer,

wherein the matrix polymer is a thermoplastic polyurethane containing units of general formula (3) below



in which the letter r is an integer from 3 to 5, and the letter s is an integer ≥ 5 .

9. (cancelled).

10. (previously presented) The polymer gel electrolyte of claim 1, 6 or 8, wherein the electrolyte salt is at least one selected from the group consisting of alkali metal salts, quaternary ammonium salts, quaternary phosphonium salts and transition metal salts.

11. (previously presented) A secondary cell comprising a positive electrode, a negative electrode and an electrolyte, wherein the electrolyte is a polymer gel electrolyte according to claim 1, 6 or 8.

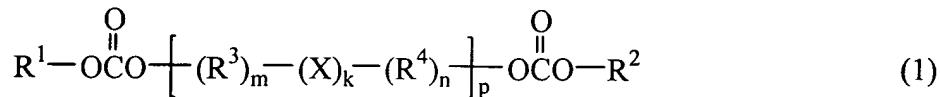
12. (original) The secondary cell of claim 11, wherein the negative electrode includes a negative electrode active material which is lithium, a lithium alloy or a carbon material capable of adsorbing and releasing lithium ions.

13. (previously presented) The secondary cell of claim 11, wherein the positive electrode includes a positive electrode active material which is an electrically conductive polymer, a metal oxide, a metal sulfide or a carbonaceous material.

14. (withdrawn) An electrical double-layer capacitor comprising a pair of polarizable electrodes and an electrolyte between the polarizable electrodes, wherein the electrolyte is a polymer gel electrolyte according to claim 1.

15. (withdrawn) The electrical double-layer capacitor of claim 14, wherein the polarizable electrodes contain activated carbon which is prepared by subjecting a mesophase pitch-based carbon material, a polyacrylonitrile-based carbon material, a gas phase-grown carbon material, a rayon-based carbon material or a pitch-based carbon material to alkali activation with an alkali metal compound, then grinding the activated carbon material.

16. (previously presented) The polymer gel electrolyte of claim 2 in which the plasticizer with at least two carbonate structures on the molecule is a compound of general formula (1) below



wherein R^1 and R^2 are each independently a substituted or unsubstituted monovalent hydrocarbon group of 1 to 10 carbons, and R^3 and R^4 are each independently a substituted or unsubstituted divalent hydrocarbon group of 1 to 20 carbons, with the proviso that any two of the moieties R^1 , R^2 , R^3 and R^4 may together form a ring; X is $-\text{OCO}-$, $-\text{COO}-$, $-\text{OCOO}-$, $-\text{CONR}^5-$, $-\text{NR}^6\text{CO}-$ (R^5 and R^6 being hydrogen or an alkyl of 1 to 4 carbons), $-\text{O}-$ or an arylene group; and the letters m , n , k and p are each independently 0 or an integer from 1 to 10.

17. (previously presented) The polymer gel electrolyte of claim 8,

wherein the thermoplastic polyurethane resin is a resin prepared by reacting a polyol compound with a polyisocyanate compound and a chain extender,

wherein the polyol compound is a polyester polyol, a polyester polyether polyol, a polyester polycarbonate polyol, a polycaprolactone polyol, or a mixture thereof.